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(11) EP 0 861 613 A2

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.09.1998 Bulletin 1998/36

(51) Int. Cl.⁶: A45C 13/00

(21) Application number: 98200528.2

(22) Date of filing: 19.02.1998

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE
Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: 24.02.1997 IT MI970388

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(54) **Hermetically sealed container, in particular for cosmetics products**

(57) A hermetically sealed container (10), in particular for cosmetics products, of the type comprising an outer casing, consisting of a base (11) on which a lid (12) is positioned in a freely removable manner, and in which there is positioned an insert (13), between the insert (13) and the base (11) there being positioned a damping elastomer seal element (16). A further seal

element (15, 19, 22, 25) is positioned between the lid (12) and the insert (13). This further seal element comprises a gasket (15) perimetally arranged about the insert (13) and extending upwards in the form of a lip (19). An elastic membrane (22) can also be provided to cooperate during sealed closure.

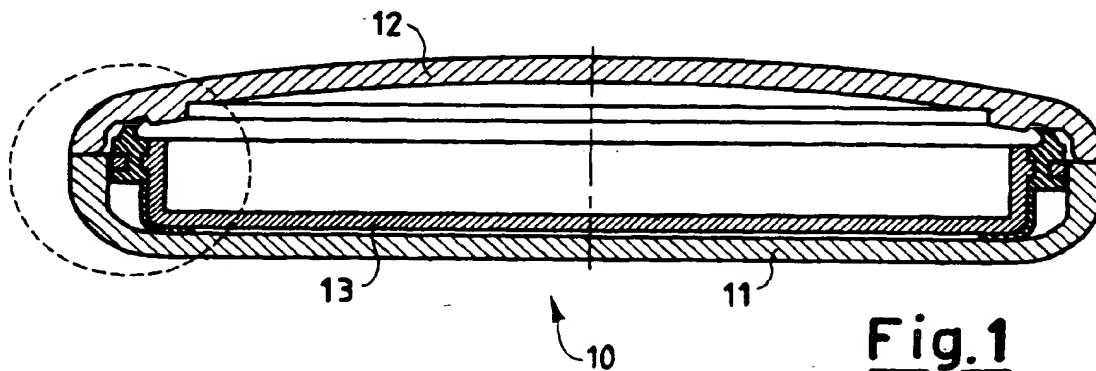


Fig. 1

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Description

This invention relates to a hermetically sealed container, in particular for cosmetics products and the like.

The container concerned is a container commonly used in the health and beauty sector, of the type comprising an outer casing in which an element for containing the cosmetics product is located.

Certain of these cosmetics products, which are under continuous development, currently contain volatile substances for instantly fixing the cosmetics product, such as rouge or colour base.

These products also have the advantage that because of their particular nature, they do not soil.

However, the volatile nature of these added substances places a limit on the entire resultant cosmetics product. In this respect, it is apparent that if the volatile component of the cosmetics product evaporates, the product no longer maintains the particular and advantageous characteristics resulting from this added substance.

It has to be remembered, *inter alia*, that after their production and before reaching the final user, such products are generally stored for a long time. This makes it even more important to maintain the integrity and quality of a cosmetics product, especially if it includes a volatile substance.

It has been attempted to solve this problem by constructing interchangeable sealed inserts or pans for cosmetics product containers, to be inserted into the container.

This solution also has evident limits in that, once the seal has been removed and the insert or pan has been inserted into the container, the problem immediately returns and the product rapidly degrades.

Again, it has been attempted to find a solution by introducing a gasket between the lid and the insert or pan, which operates each time the container is closed.

This solution is however also not permanent because the gasket, initially sized for proper sealing, tends not to provide a continuous sealing action because of cold molecular creep of the component plastic materials of the entire container and of the elements contained in it. Hence those parts under stress partly lose their dimensional stability with time.

The general object of the invention is to solve the aforementioned technical problems in an extremely simple, economical and particularly functional manner.

Said object is attained by a hermetically sealed container, in particular for cosmetics products, having the characteristics defined in the accompanying claims.

The structural and functional characteristics of the invention and its advantages over the known art will be more apparent from an examination of the following description given with reference to the accompanying drawings, which show examples of containers constructed in accordance with the invention. On the drawings:

Figure 1 is a section through a first embodiment of a hermetically sealed container, in particular for cosmetics products, closed in accordance with the invention;

Figure 2 is an enlarged detail of a side end of the section of Figure 1;

Figure 3 is a section through a second embodiment of a whole hermetically sealed container, closed in accordance with the invention;

Figure 4 is a section through the container of Figure 3 without its lid;

Figure 5 is an enlarged detail of a side end of the section of Figure 3;

Figure 6 is a section through a third embodiment of a whole hermetically sealed container, closed in accordance with the invention;

Figure 7 is an enlarged detail of a side end of the section of Figure 6;

Figure 8 is a section through a fourth embodiment of a whole hermetically sealed container, closed in accordance with the invention;

Figure 9 is an enlarged detail of a side end of the section of Figure 8;

Figure 10 is a section through a fifth embodiment of a whole hermetically sealed container, closed in accordance with the invention;

Figure 11 is an enlarged detail of a side end of the section of Figure 10;

Figure 12 is a section through a sixth embodiment of a whole hermetically sealed container, closed in accordance with the invention;

Figure 13 is an enlarged detail of a side end of the section of Figure 12;

Figure 14 is a section through a seventh embodiment of a whole hermetically sealed container, closed in accordance with the invention;

Figure 15 is an enlarged detail of a side end of the section of Figure 14;

Figure 16 is a section through an eighth embodiment of a whole hermetically sealed container, closed in accordance with the invention;

Figure 17 is an enlarged detail of a side end of the section of Figure 16;

Figure 18 is a section through a ninth embodiment of a whole hermetically sealed container, closed in accordance with the invention;

Figure 19 is an enlarged detail of a side end of the section of Figure 18;

Figure 20 is a section through a tenth embodiment of a whole hermetically sealed container, closed in accordance with the invention; and

Figure 21 is an enlarged detail of a side end of the section of Figure 20;

With reference to the drawings, the hermetically sealed container of the invention is indicated overall by 10, and in the first embodiment of the invention shown in Figures 1 and 2 is of round shape. The container 10

comprises a base 11 on which a lid 12 is positioned in a freely removable manner, to together form the outer casing, inside which there is placed an insert or pan 13.

Both the casing and the insert can be of a shape other than the round shape shown by way of non-limiting example.

The insert 13 has a radially outward projecting perimetral edge 14 on which there is positioned an elastomer gasket 15, for example overmoulded by injection-moulding and having good elastic return.

The elastomer gasket 15 extends in the form of a further portion 16 from around the edge 14 to below the base of the insert 13.

The further gasket portion 16 can either be moulded rigid with the gasket 15 or be moulded separately, again of an elastomer material.

The further portion 16 is located between an outer surface 17 of the base of the insert 13 and an inner surface 18 of the base 11 of the container casing.

The gasket 15 extends upperly in the form of a perimetral lip 19 arranged to engage an inner surface 20 of the lid 12. The lip 19 is preferably yieldable radially towards the container interior in order to be able to more easily perform its sealing action when the lid is closed.

For this purpose the inner surface 20 of the lid 12 can comprise a circular recess 21 which houses the lip 19 during lid closure and during the compression of the entire seal gasket 15.

A hermetically sealed container of the invention, in particular for cosmetics products, exerts a particularly reliable sealing action when closed.

During closure, the lid 12 compresses the gasket 15 and the entire insert 13. The action of the further elastomer portion 16, located between the outer surface 17 of the base of the insert 13 and the inner surface 18 of the casing base 11, compensates and maintains constant the load between the gasket 15 and the lid 12 of the container 10.

The presence of the elastomer portion 16 ensures that this action persists with time, by preventing the creation of any escape path for the volatile component forming part of the cosmetics product, such as rouge or colour base, contained in the insert or pan 13.

Hence the importance of an elastomer portion positioned below the insert or pan within the base of the container for cosmetics products according to the invention is immediately apparent.

In all the further embodiments of the container of the invention, equal parts are indicated by the same reference numerals.

Figures 3, 4 and 5 show a second embodiment of a container of the invention, in which an elastic membrane 22 is also present.

The membrane 22 is located in correspondence with the peripheral inner part of the lip 19 as shown in Figure 4, when the lid 12 is not present. When in this rest position the elastic membrane 22 flexes upwards to reduce its operative diameter of expansion, its central

gripping element 23 also projecting upwards.

When however the lid 12 is replaced to close the container 10, the inner surface of the lid 12 or an element incorporated into it, such as a mirror 24, presses on the central element 23 to compress the membrane.

This compression of the membrane 22 causes its perimetral edge to act on the lip 19 of the gasket 15 from the inside towards the outside, with considerable increase in sealing.

In this embodiment there is therefore a double sealing action, namely between the lid and gasket and between the membrane and gasket by the presence of the lid.

The membrane 22 also achieves the purpose of protecting the mirror 24 from the product present in the container. In this respect, the volatile products present in the cosmetics product can condense and form a halo on the mirror, to impede its normal light refraction.

Figures 6 and 7 show a container similar to that of Figures 3-5, in which in correspondence with the outer perimeter of the elastic membrane 22 there is combined a further elastomer element 25, for example of circular cross-section. The elastomer element 25, which can also for example be directly overmoulded in that position, becomes located on the inside of the lip 19.

When the lid 12 is positioned on the base 11 containing the insert 13, the elastomer element 25, under the pressure generated by the membrane 22 caused to expand by the closure of the lid, presses directly against the gasket lip to increase the sealing action and prevent escape of volatile products.

In the fourth embodiment shown in Figures 8 and 9, the membrane 22 is located in a different position, namely in a recess 26 provided on the inside of the insert 13 along its upper edge.

Hence in this embodiment a seal is achieved between the lip 19 of the gasket 15 and the lid 12, and between the further damping portion 16 of the gasket and the container base 11. In addition, the elastic membrane 22 directly seals the insert 13 when the lid 12 is in position.

Figures 10 and 11 show a container having substantially the same arrangement as that of Figures 8 and 9. As in the third embodiment, the membrane 22 of this fifth embodiment is combined with a further elastomer element, such as that already indicated by 25. The elastomer element 25 can for example be directly overmoulded onto the periphery of the membrane, and becomes located in the recess 26 provided on the inside of the insert 13 along its upper edge.

The sixth embodiment of Figures 12 and 13 shows how a portion 27 of the gasket 15 can extend to above the upper edge of the insert 13, to at least partially cover it. Consequently the membrane 22 can be directly located on the upper edge of the insert 13 so as to interfere and interact with the portion 27 of the gasket 15.

The provision of a further elastomer element, again indicated by 25, is shown in Figures 14 and 15. This

elastomer element 25 rigid with the membrane 22 is also located on the upper edge of the insert 13, to interfere with and press against the portion 27 of the gasket 15 when the container lid is closed.

An embodiment with a certain difference is shown in Figures 16 and 17, and has an additional element to the embodiment of Figures 1 and 2.

On its upper edge, the insert 13 receives a cover or similar flat rigid element 28. The cover 28 is located internal to the lip 19 of the gasket 15, the lip 19 deforming over the cover 28 on closing the lid 12, to improve the sealing of the container.

Finally, the two remaining embodiments of Figures 18, 19 and 20, 21 represent an extremely simplified embodiment from which the gasket 15 is absent, there being only provided the further elastomer portion 16.

In this type of container, in a first embodiment (Figures 18 and 19) there is simply provided a recess 26 in proximity to the upper edge of the insert 13, to receive the outer peripheral part of the elastic membrane 22. In the second embodiment (Figures 20 and 21) the outer periphery of the membrane carries a further elastomer element 25 rigid with it or formed integral therewith, to be sealingly located within the recess 26 by the action between the membrane and the lid.

From the foregoing description with reference to the figures, it is apparent that the substantial characteristic is the presence of the further elastomer gasket portion 16. By being positioned within the bottom of the container below the insert, this gasket portion 16 maintains the seal with the passage of time, to prevent any escape of volatile product.

The object stated in the introduction to the description is hence attained.

As seen, the various container components can assume the most varied shapes, which can be different from those shown on the drawings by way of non-limiting example only.

The scope of protection of the invention is consequently defined by the accompanying claims.

Claims

1. A hermetically sealed container, in particular for cosmetics products, of the type comprising an outer casing, consisting of a base (11) on which a lid (12) is positioned in a freely removable manner, inside which there is placed an insert 13, characterised in that between said insert (13) and said base (11) there is inserted a damping elastomer seal element (16).
2. A container as claimed in claim 1, characterised by comprising a further seal element (15, 19, 22, 25) positioned between said lid (12) and said insert (13).
3. A container as claimed in claim 2, characterised in

that said further seal element comprises a gasket (15) perimetally arranged about said insert (13) and extending upwards in the form of a lip (19).

4. A container as claimed in claim 3, characterised in that said gasket (15) is overmoulded onto a perimetral edge (14) extending radially from said insert (13).
5. A container as claimed in claim 3, characterised in that said lip (19) abuts against the interior of a recess (21) provided within said lid (12).
6. A container as claimed in claim 3, characterised in that with said lip (19) there is internally associated an elastic membrane (22) which, when in its rest position, flexes upwards so reducing its operative diameter.
7. A container as claimed in claim 6, characterised in that said membrane (22) has a central gripping element (23) which also projects upwards towards said lid (12).
8. A container as claimed in claim 6, characterised in that said membrane (22) comprises, in correspondence with its outer perimeter, a further elastomer element (25).
9. A container as claimed in claim 3, characterised in that said insert (13) comprises a recess (26) provided in an upper edge thereof and against the interior of which there abuts an elastic membrane (22).
10. A container as claimed in claim 9, characterised in that said membrane (22) comprises, in correspondence with its outer perimeter, a further elastomer element (25) which abuts against the interior of said recess (26).
11. A container as claimed in claim 3, characterised in that said gasket (15) extends into a portion (27) extending to above an upper edge of said insert (13), to at least partially cover it, an elastic membrane (22) being located on said upper edge of said insert, to interfere and interact with said portion (27) of the gasket (15).
12. A container as claimed in claim 11, characterised in that said membrane (22) comprises, in correspondence with its outer perimeter, a further elastomer element (25) which abuts against said portion (27) of the gasket (15).
13. A container as claimed in claim 3, characterised in that a cover (28) is associated internally with said lip (19).

14. A container as claimed in claim 2, characterised in that in an upper edge of said insert (13) there is provided a recess (26) within which an elastic membrane (22) is positioned.

15. A container as claimed in claim 14, characterised in that said membrane (22) comprises, in correspondence with its outer perimeter, a further elastomer element (25) which abuts against the interior of said recess (26).

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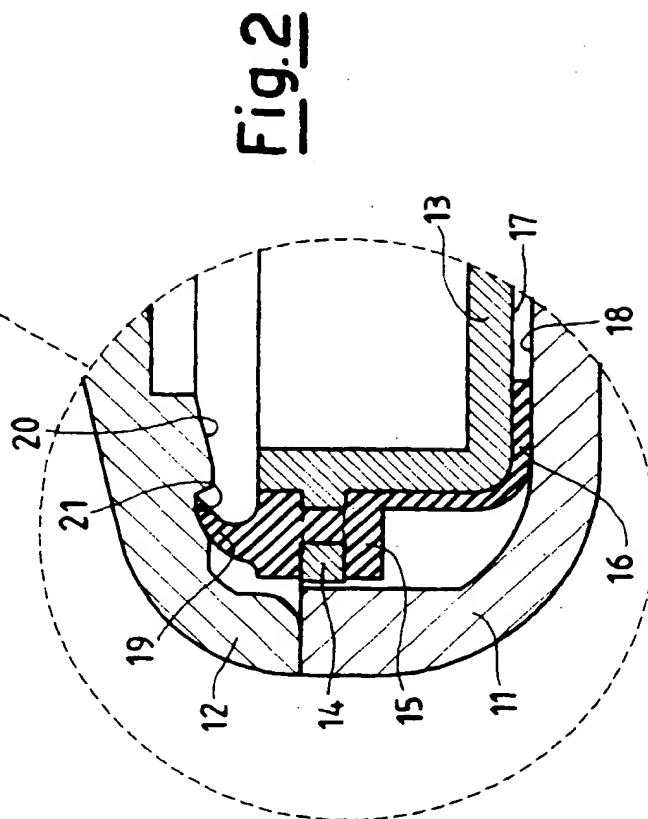
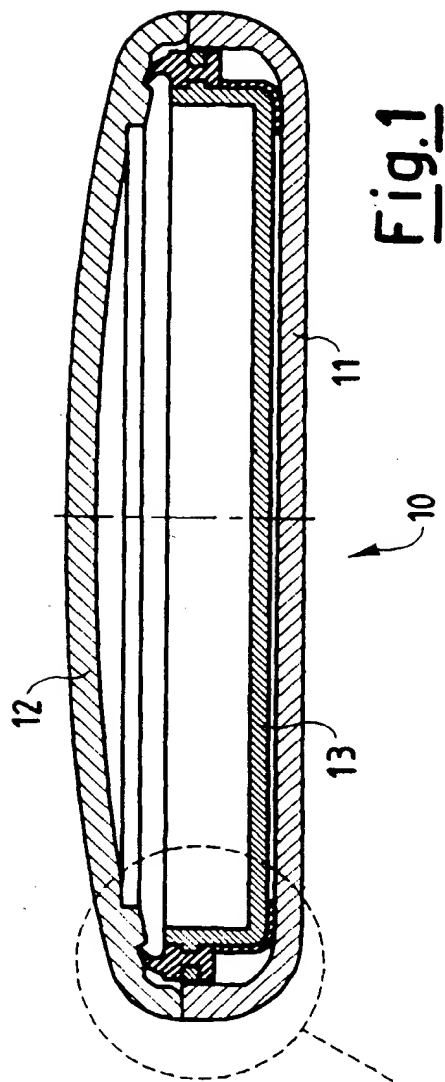
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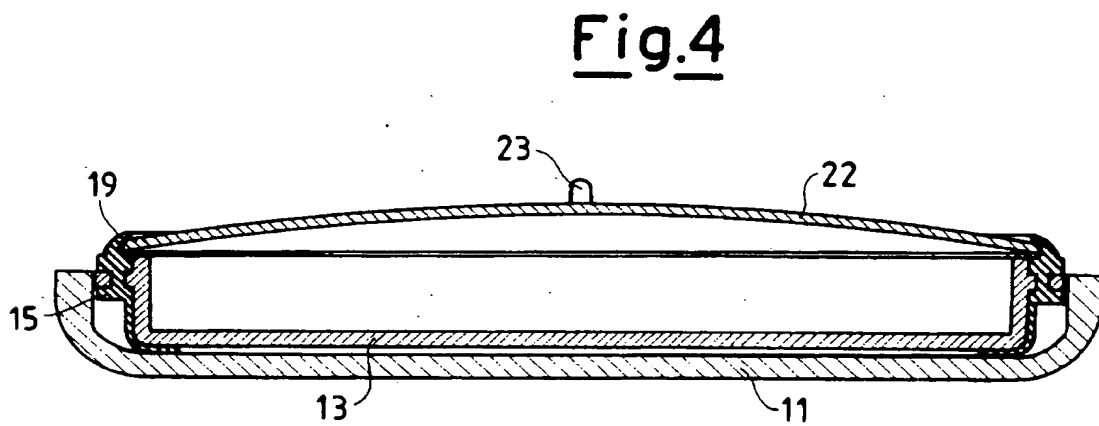
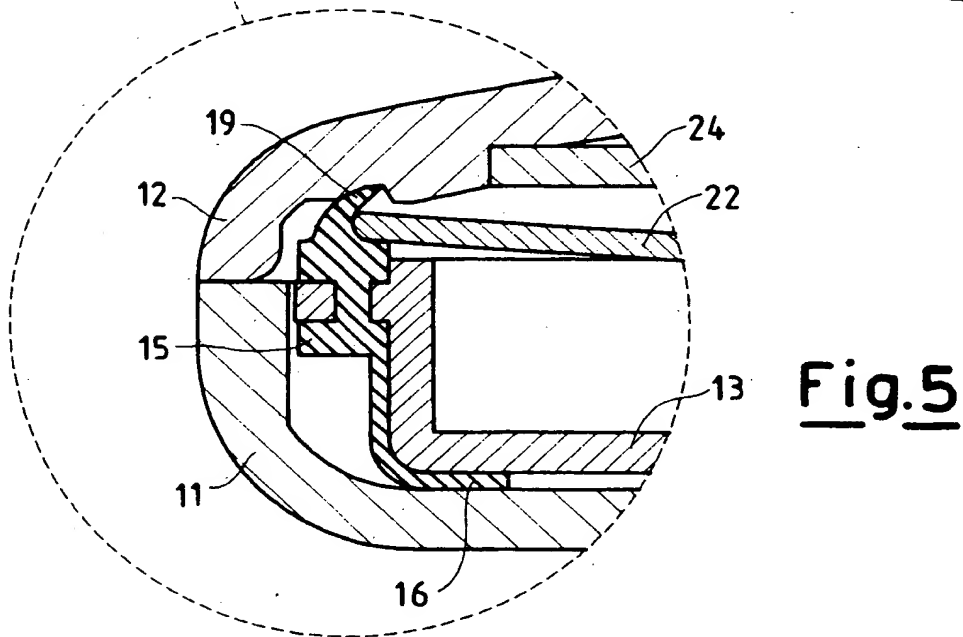
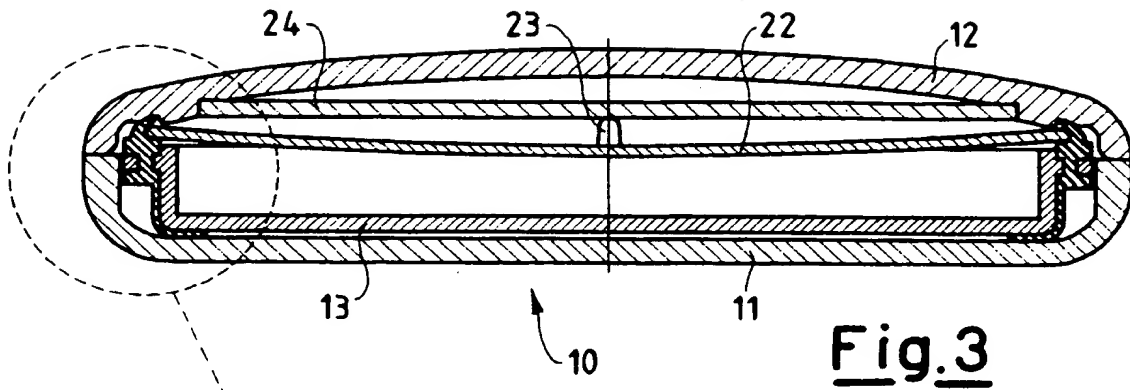
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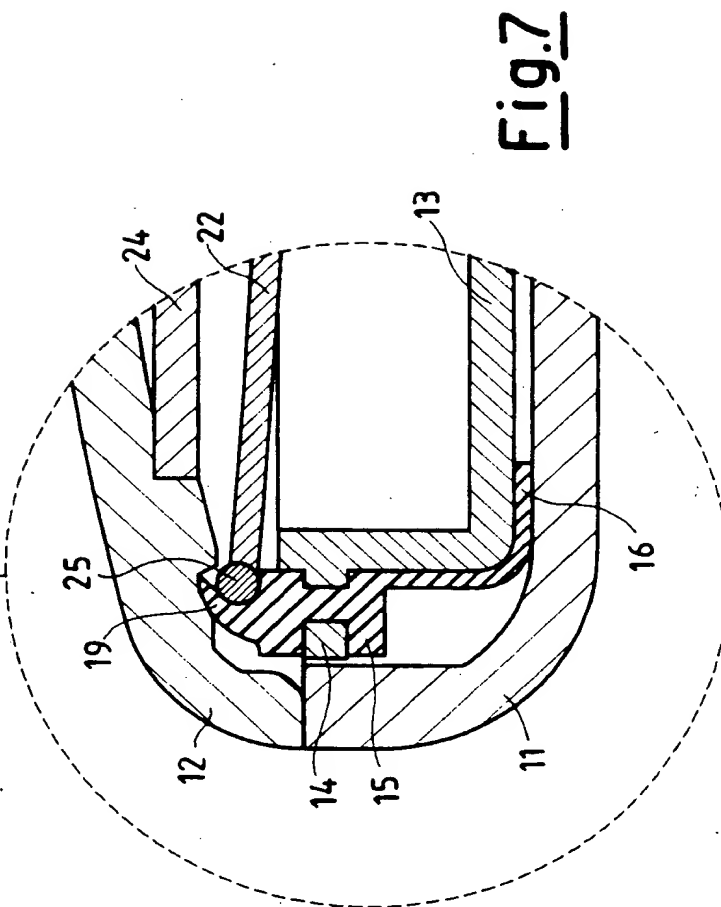
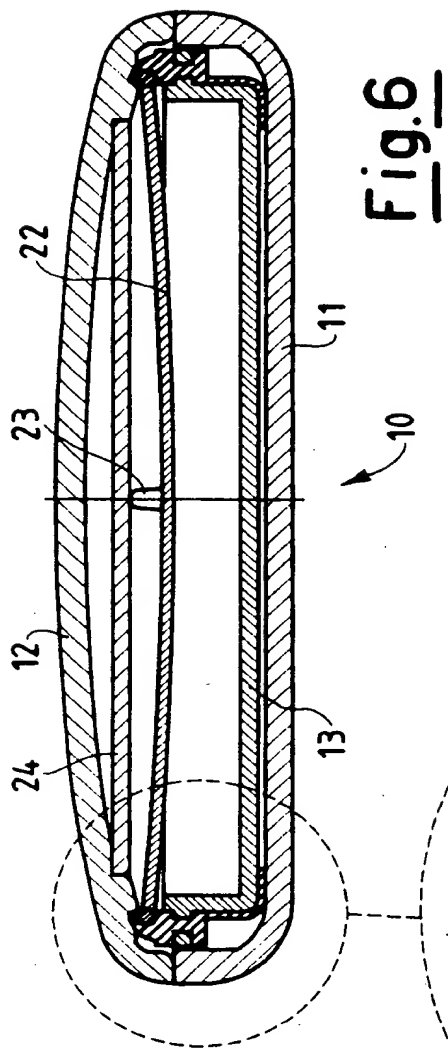
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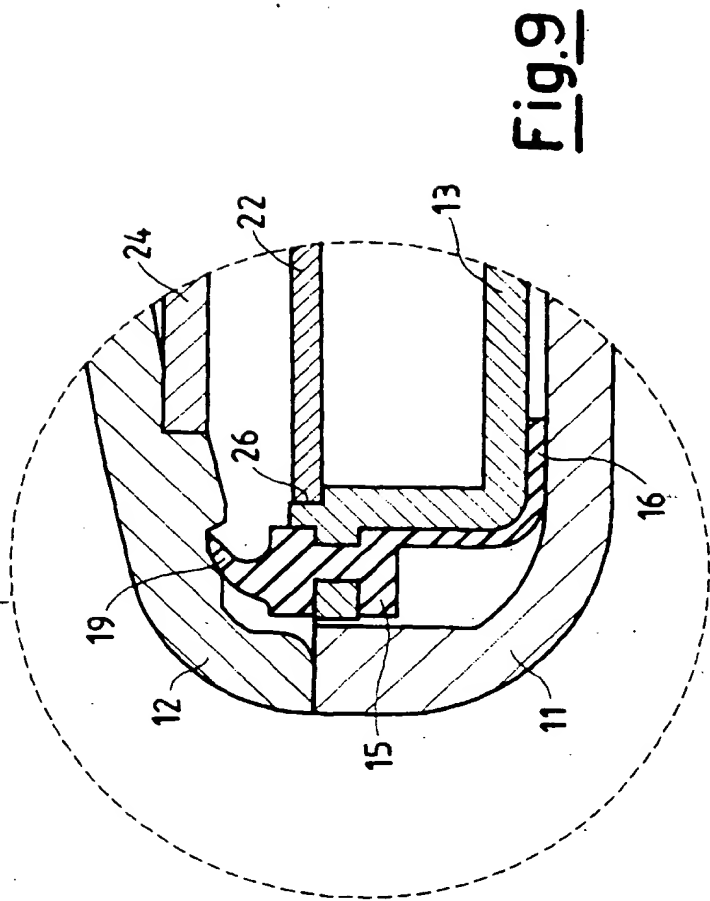
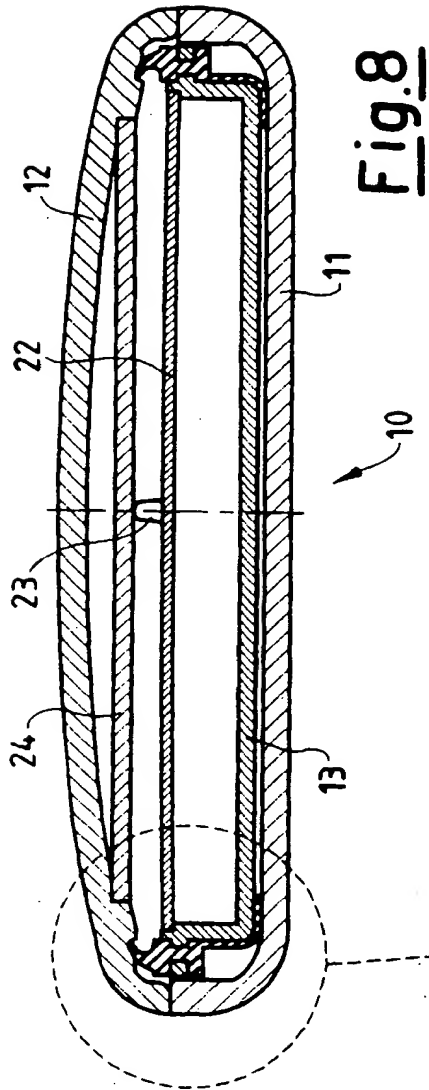
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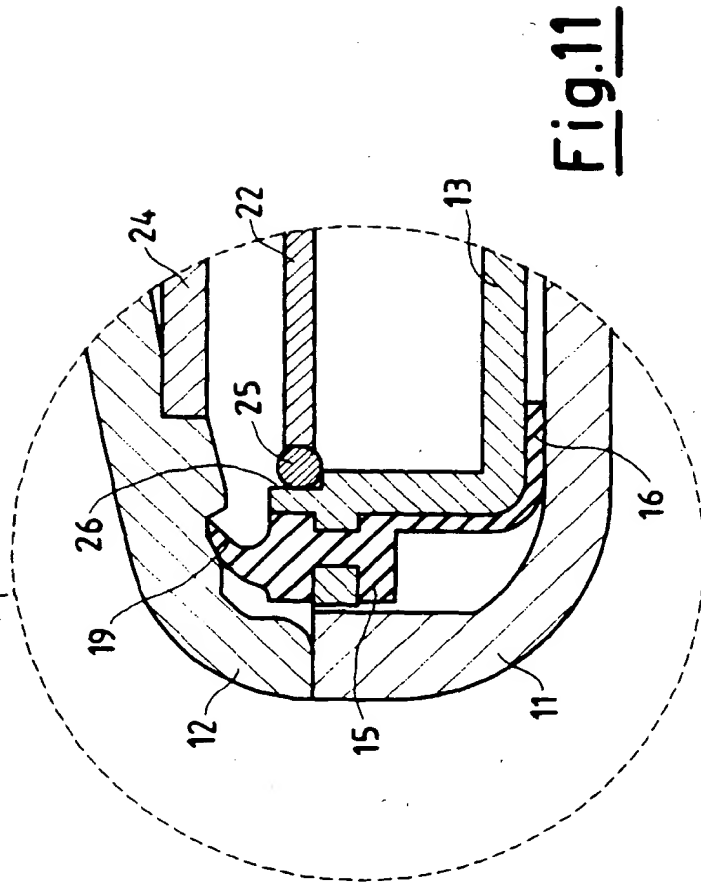
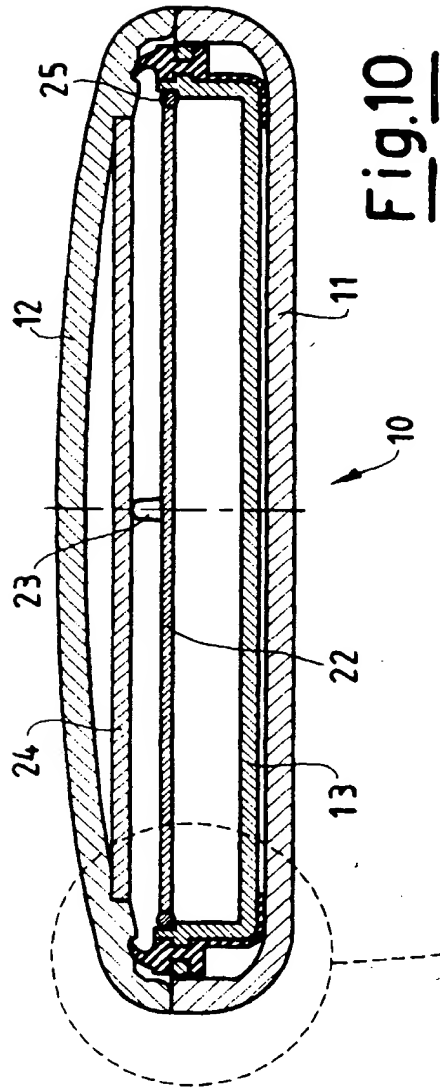
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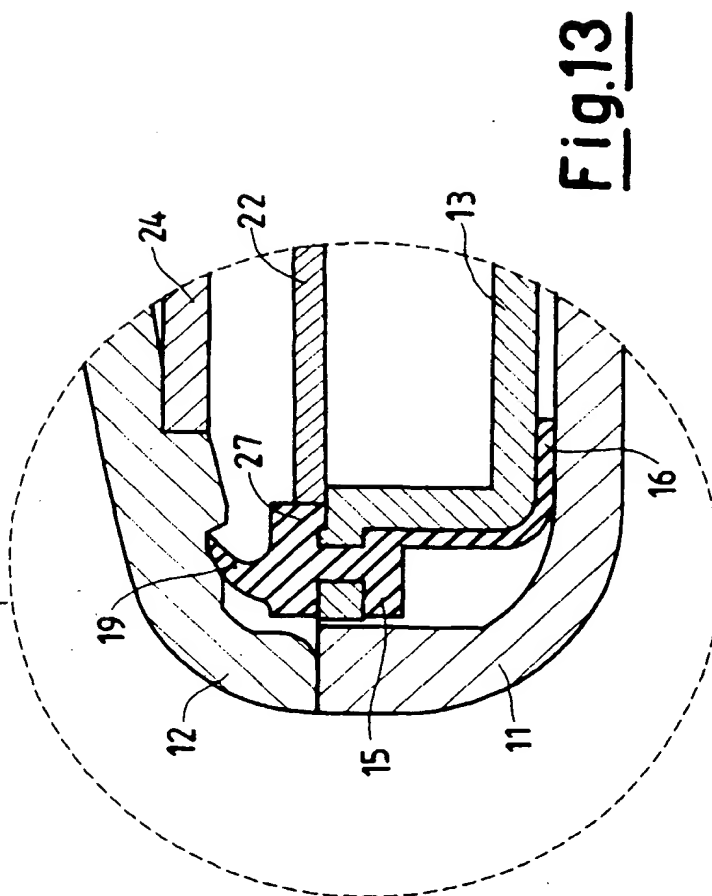
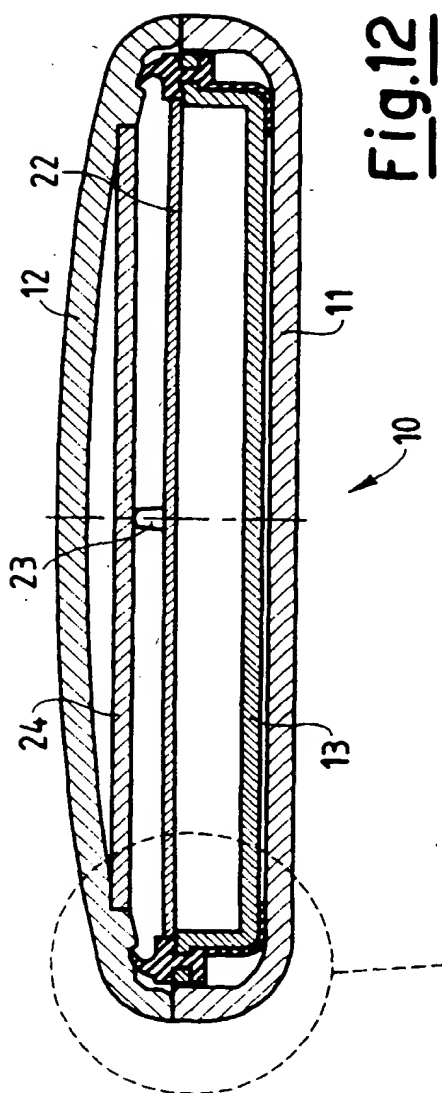


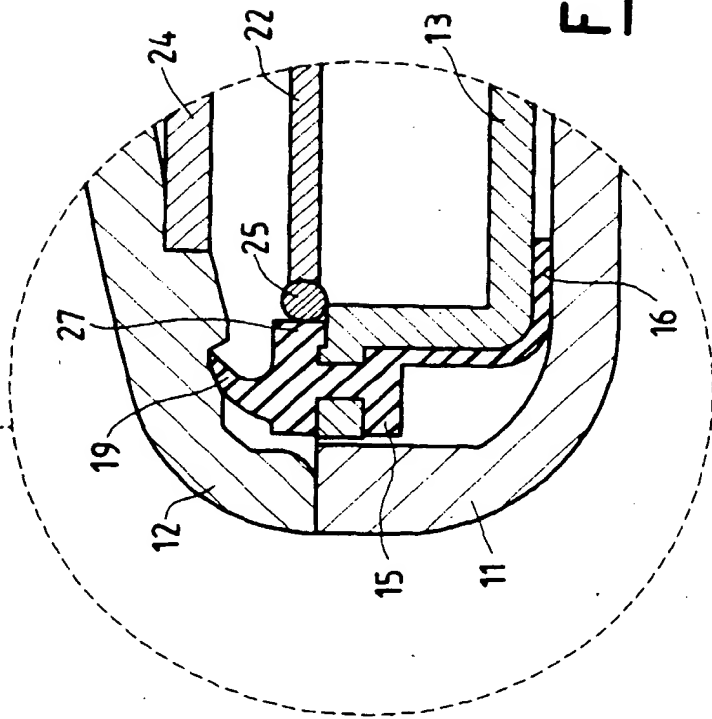
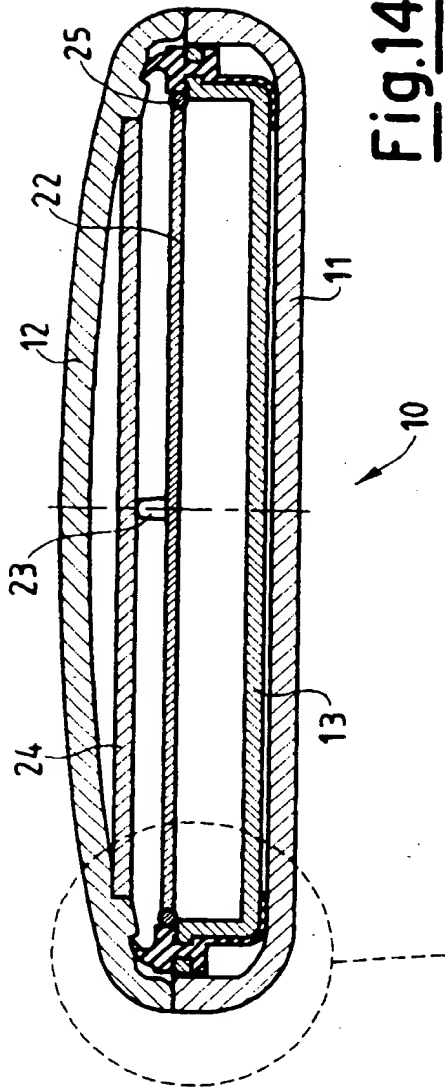












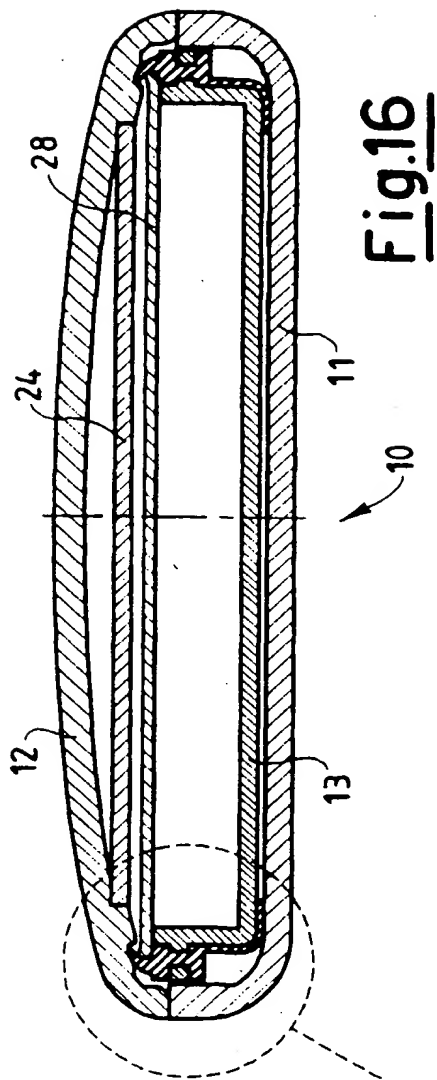


Fig.16

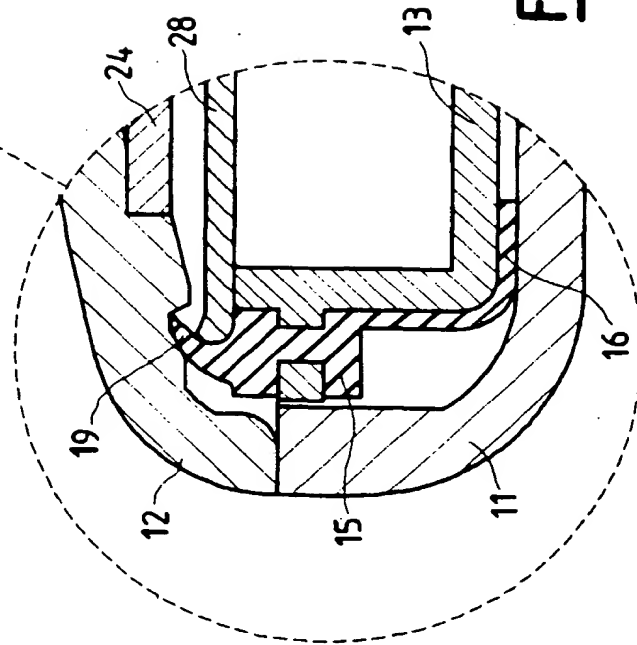
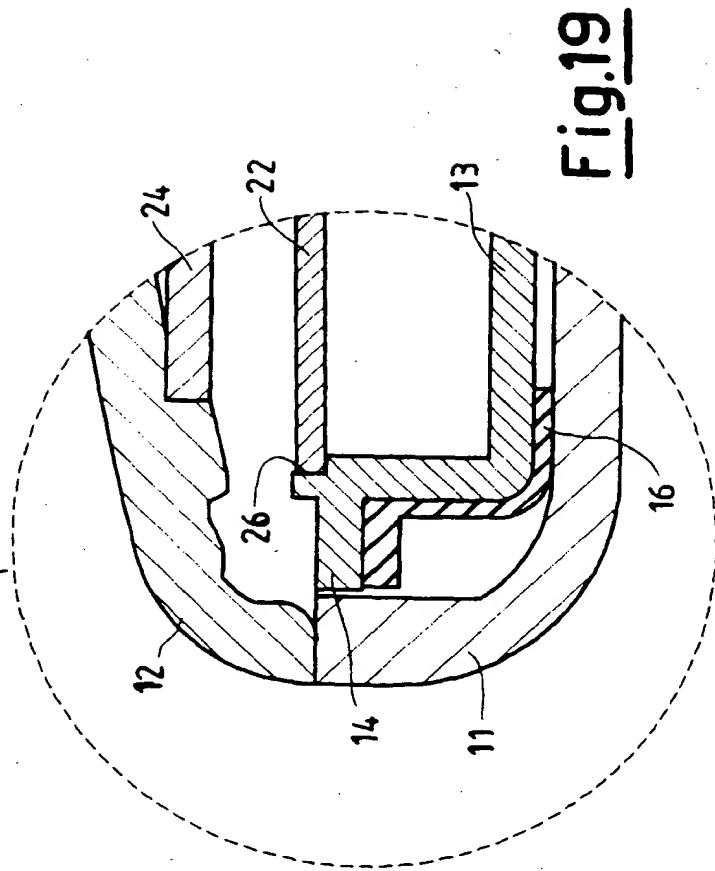
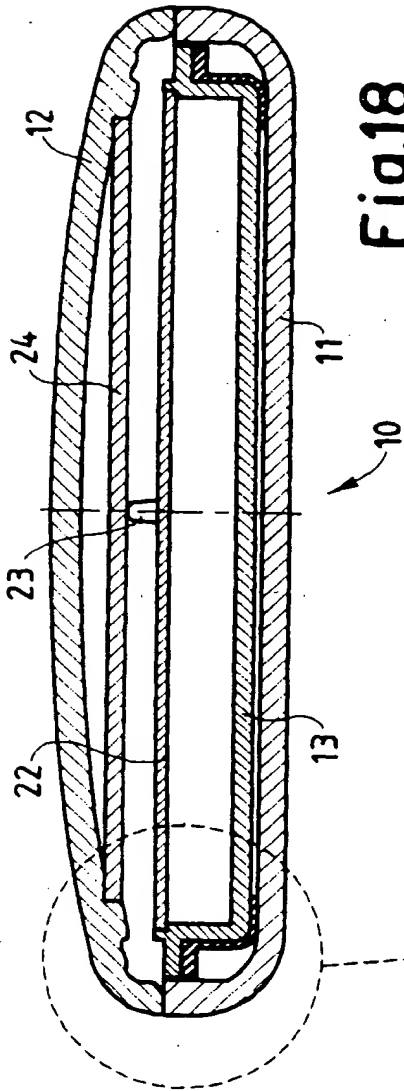
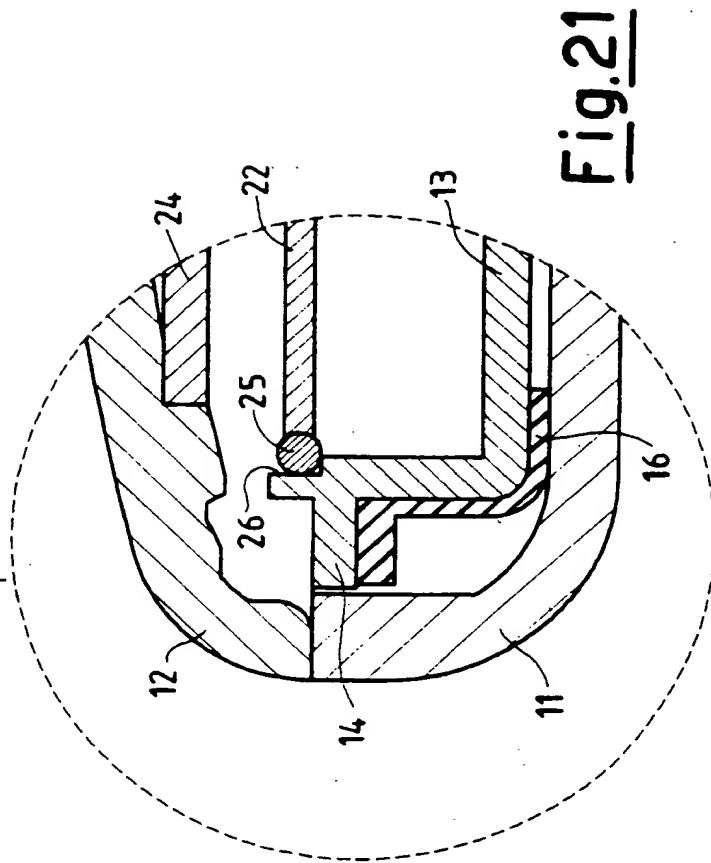
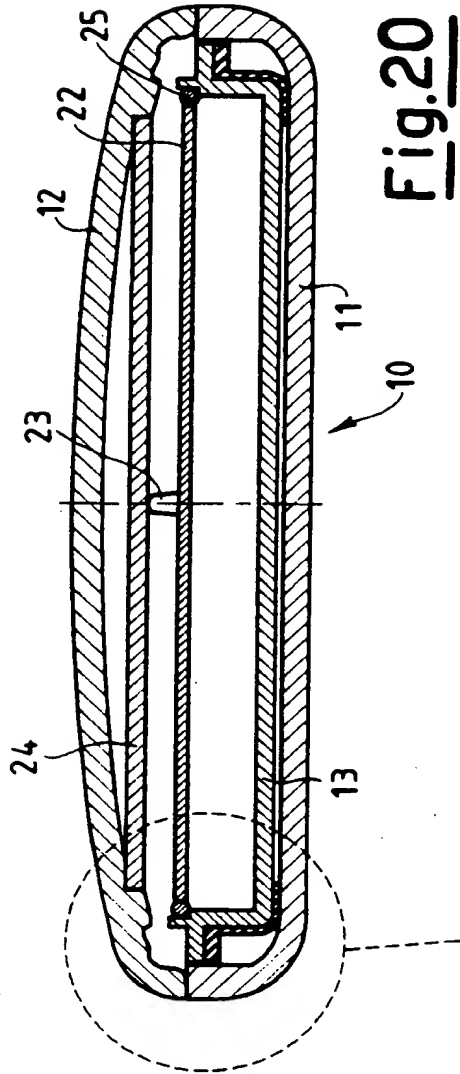


Fig.17





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